

FIG. 1

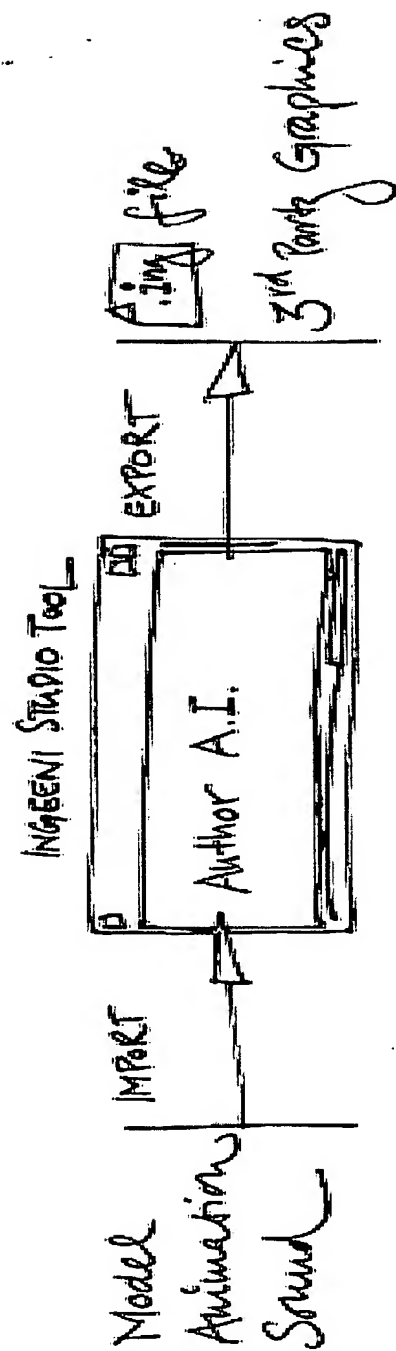


FIG. 2

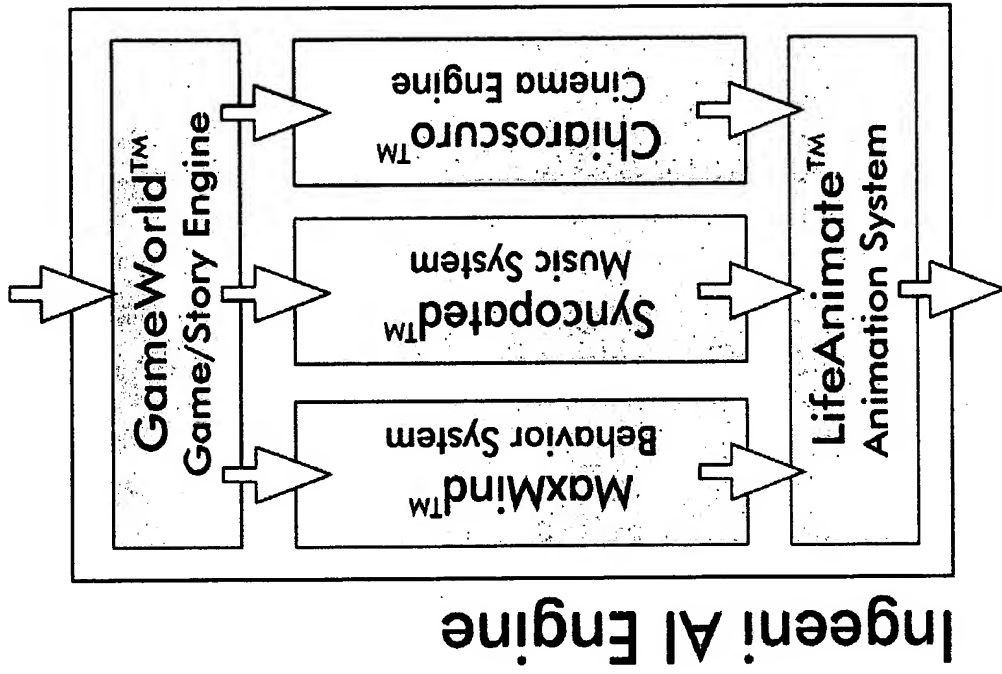


FIG. 3

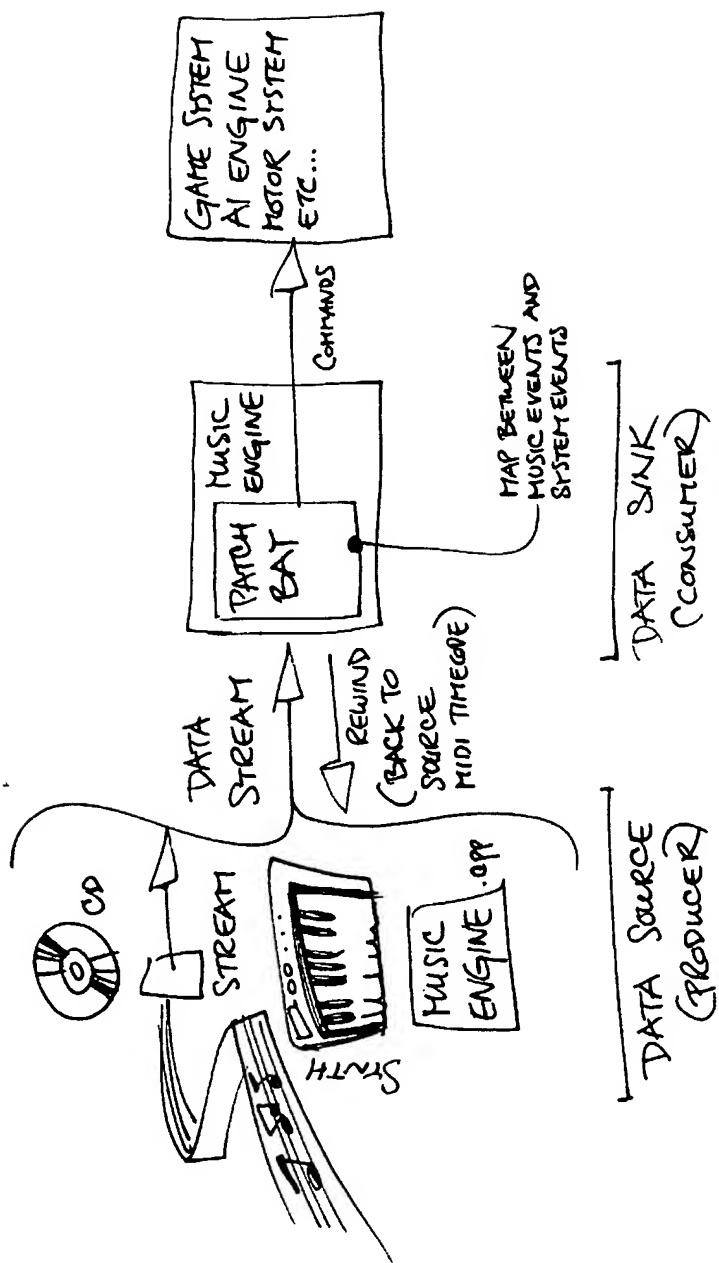


FIG. 4

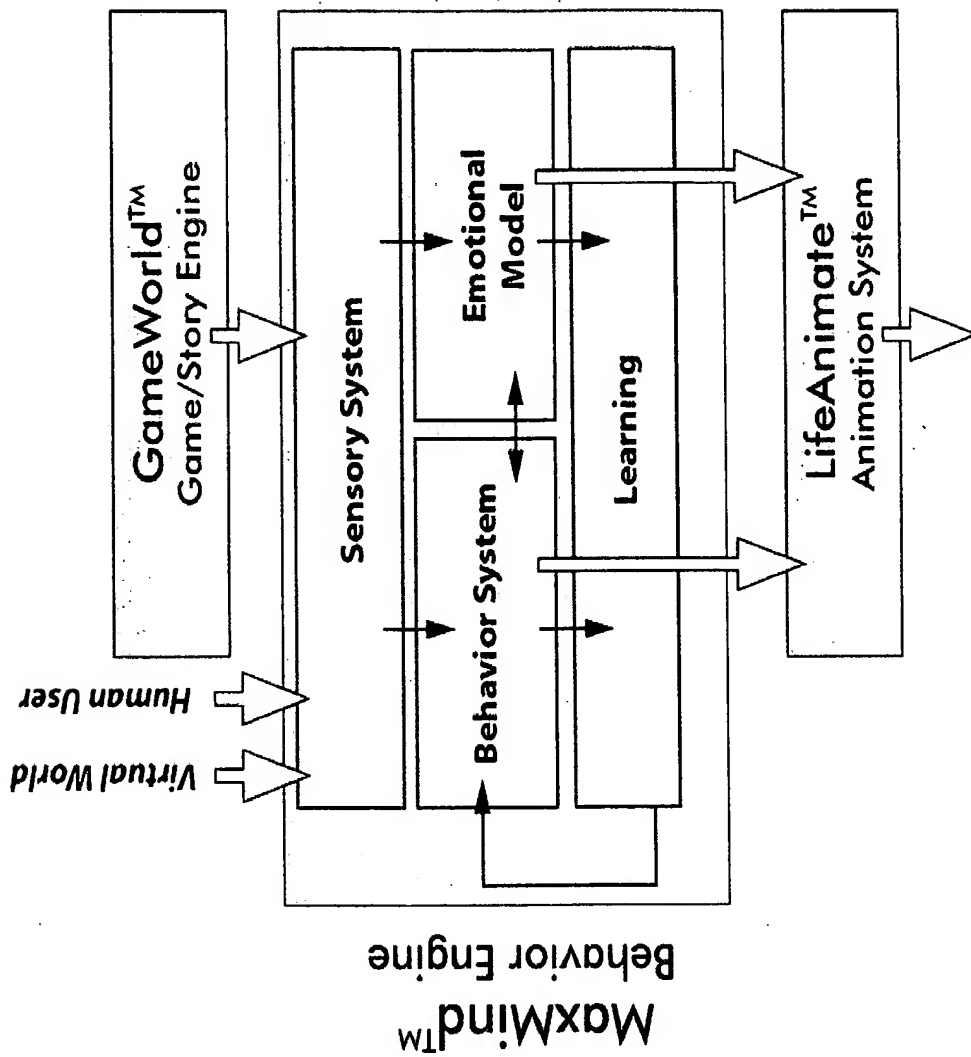


FIG. 5

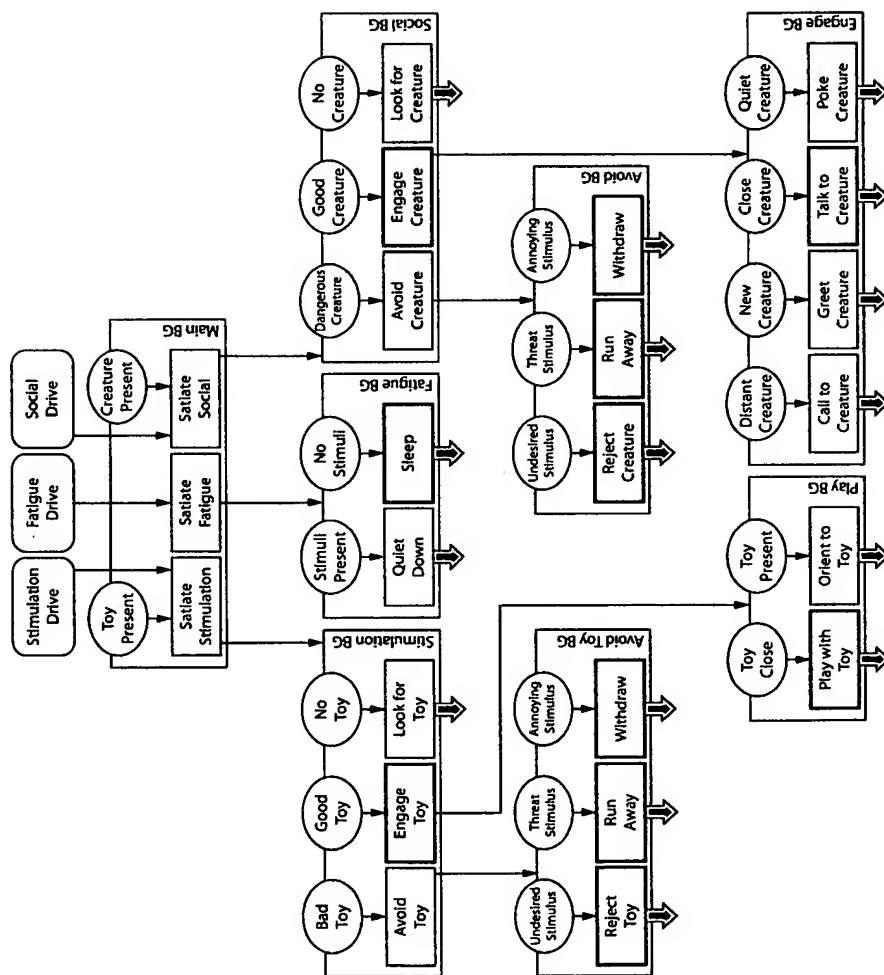


FIG. 6

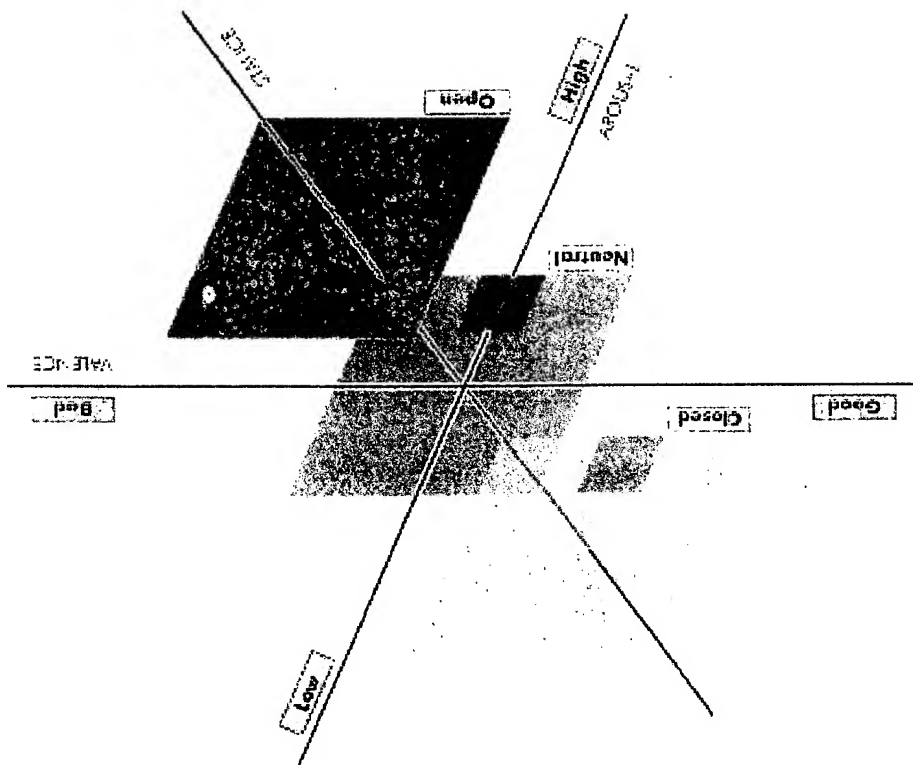
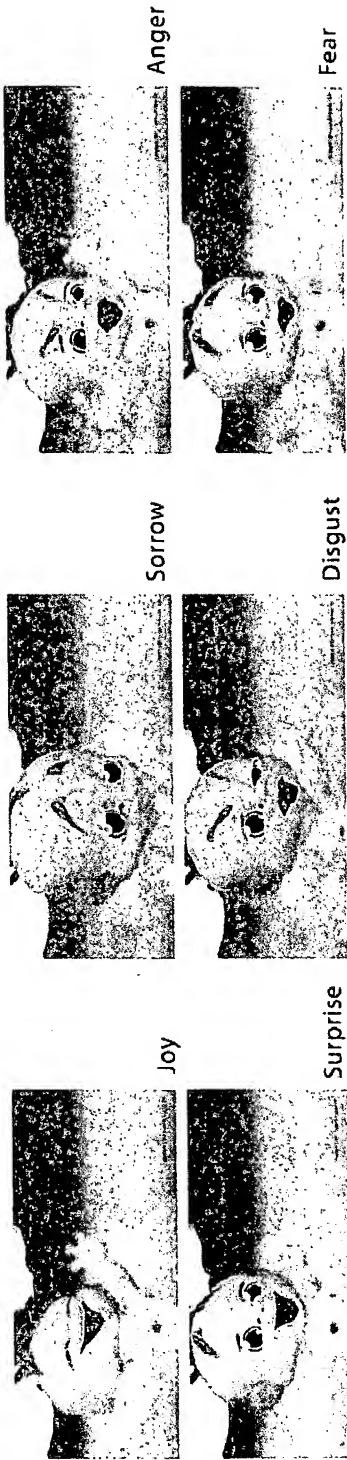


FIG. 7



Trigger condition	Emotion	Resulting behavior
Difficulty in achieving goal	Anger	Complain
Presence of an undesired stimulus	Disgust	Withdraw
Threatening, overwhelming stimulus	Fear	Escape
Success in achieving goal	Joy	Laugh, display pleasure
Prolonged absence of desired stimulus	Sorrow	Display sorrow
A sudden stimulus	Surprise	Startle response

FIG. 8



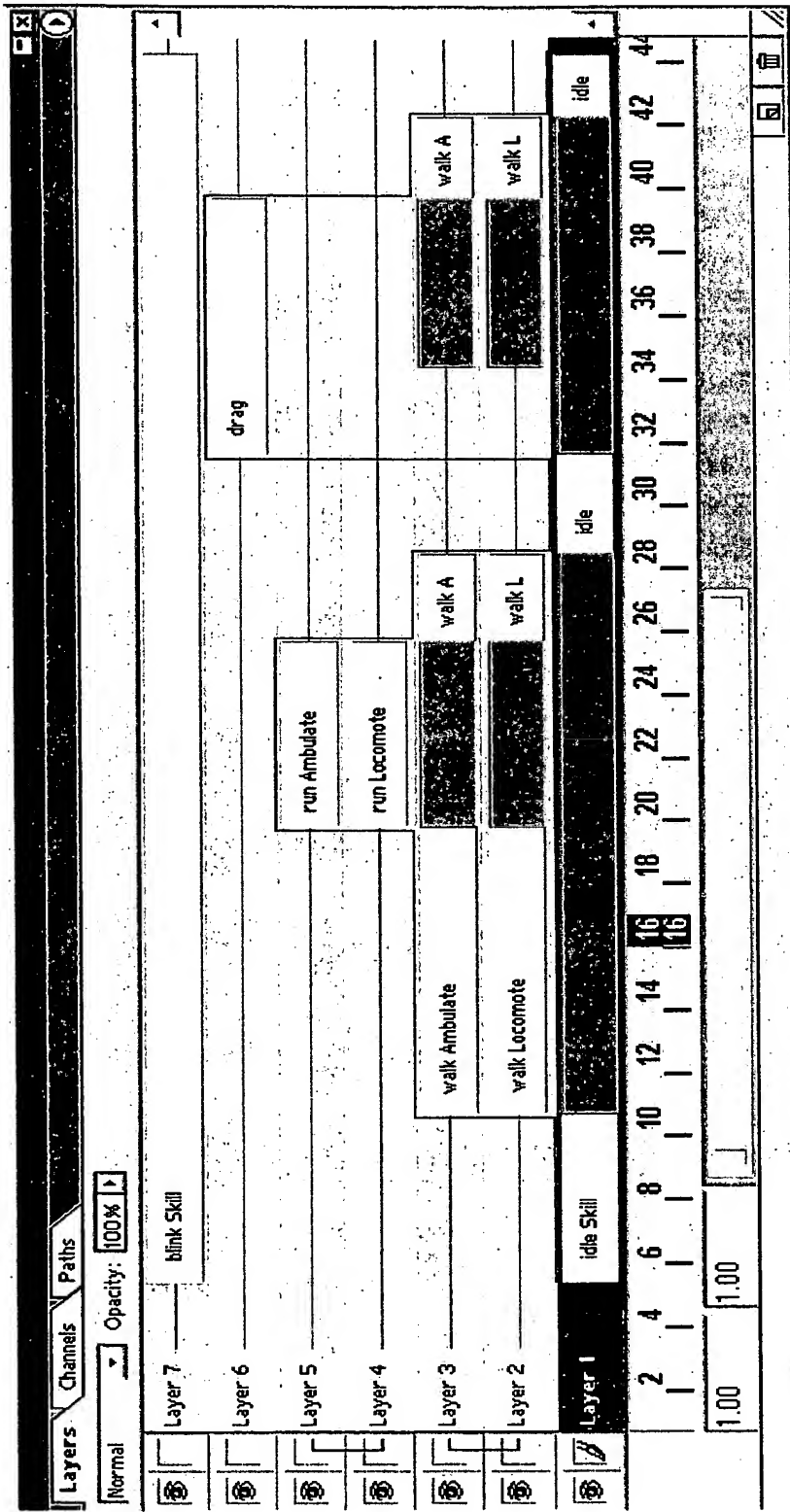


FIG. 9

Image Composite (existing metaphor)	Animation Composite
Pixel	Animation channel, or animation curve, or Degree of Freedom (DOF), or a floating point number changing over time.
Layer	An animation, a collection of animation channels over time, a Skill.
Transparency	An animation in a layer can be sparse; it does not need to "touch" every channel. Empty animation channels correspond to transparent pixels.
Blend mode	Applies to animation data as well, determines the type and percentage contribution of each layer.

FIG. 10

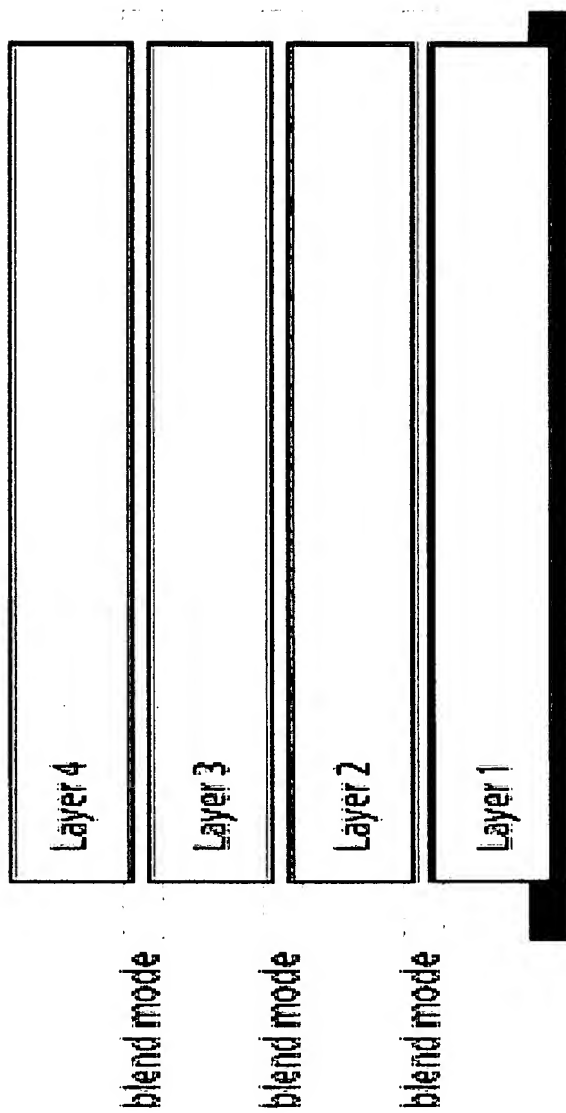


FIG. 11

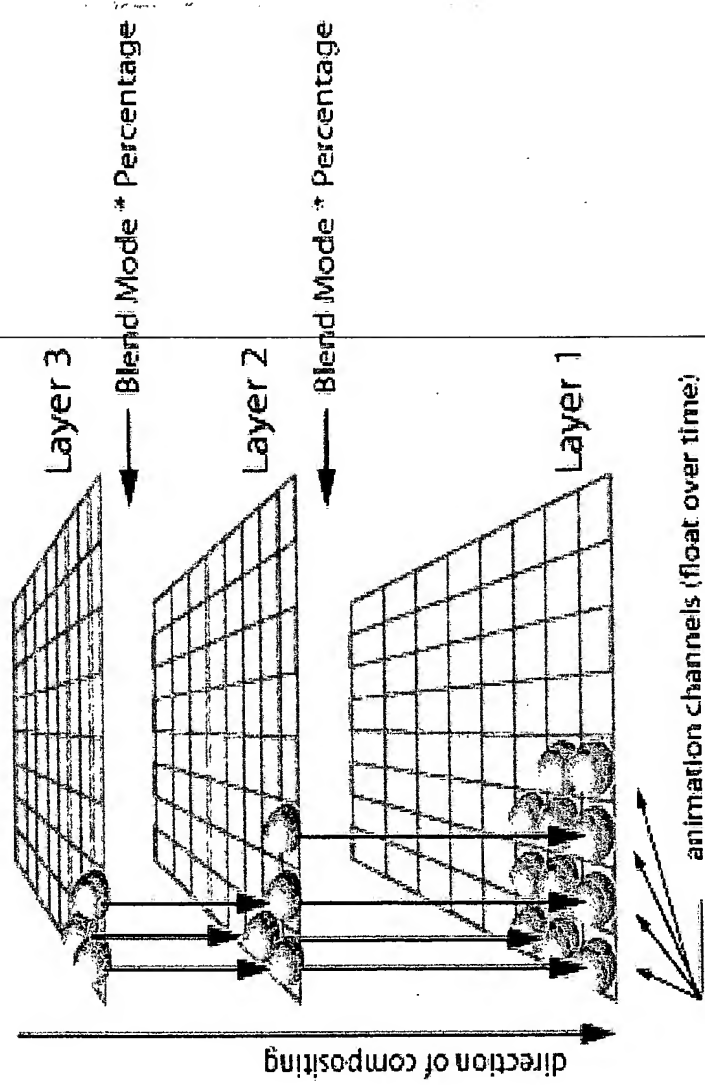


FIG. 12

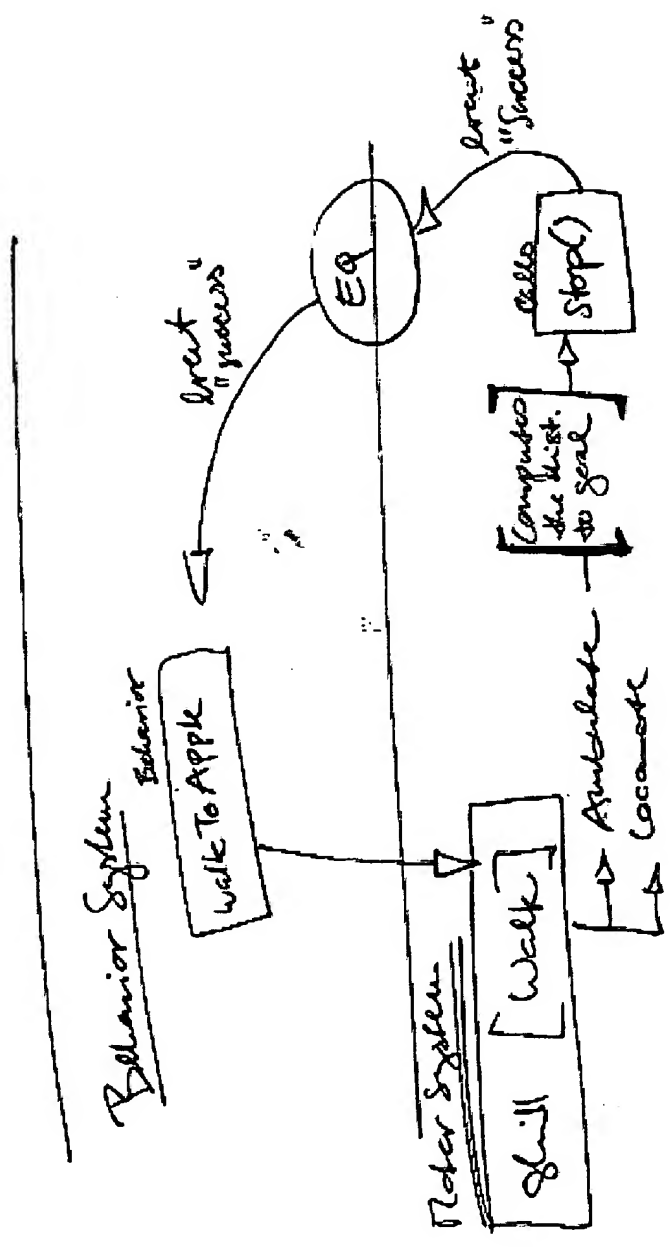


FIG. 13

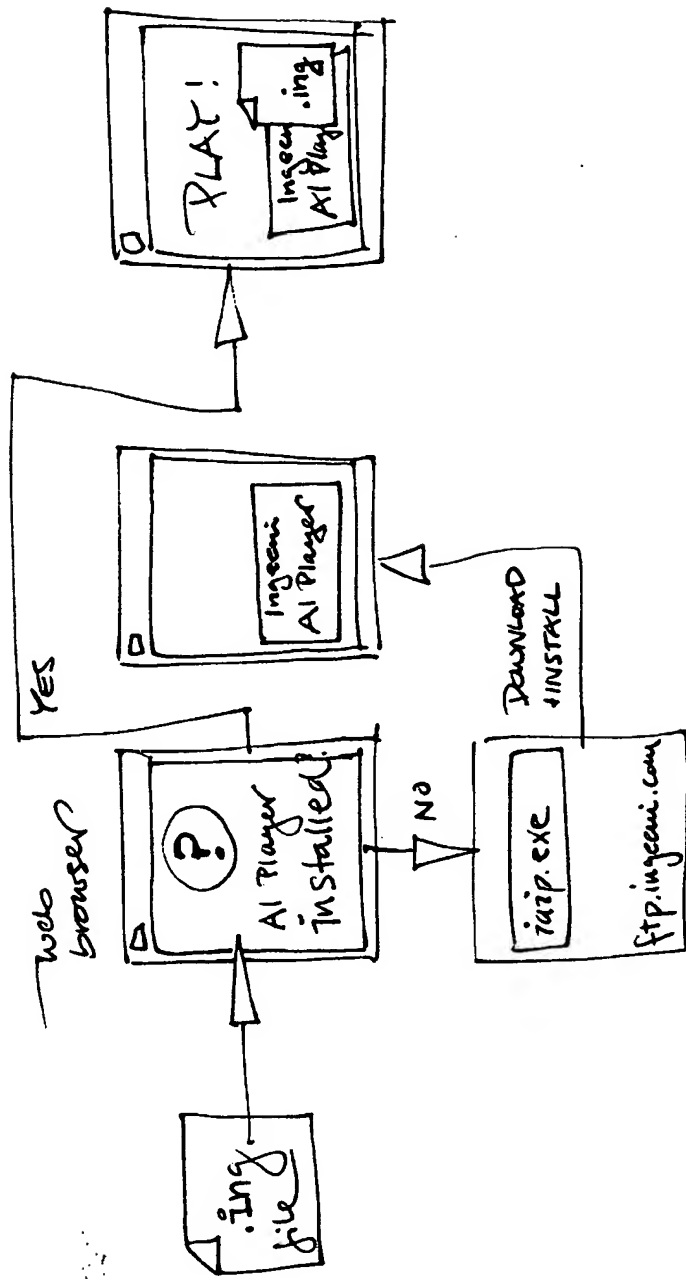


FIG. 14

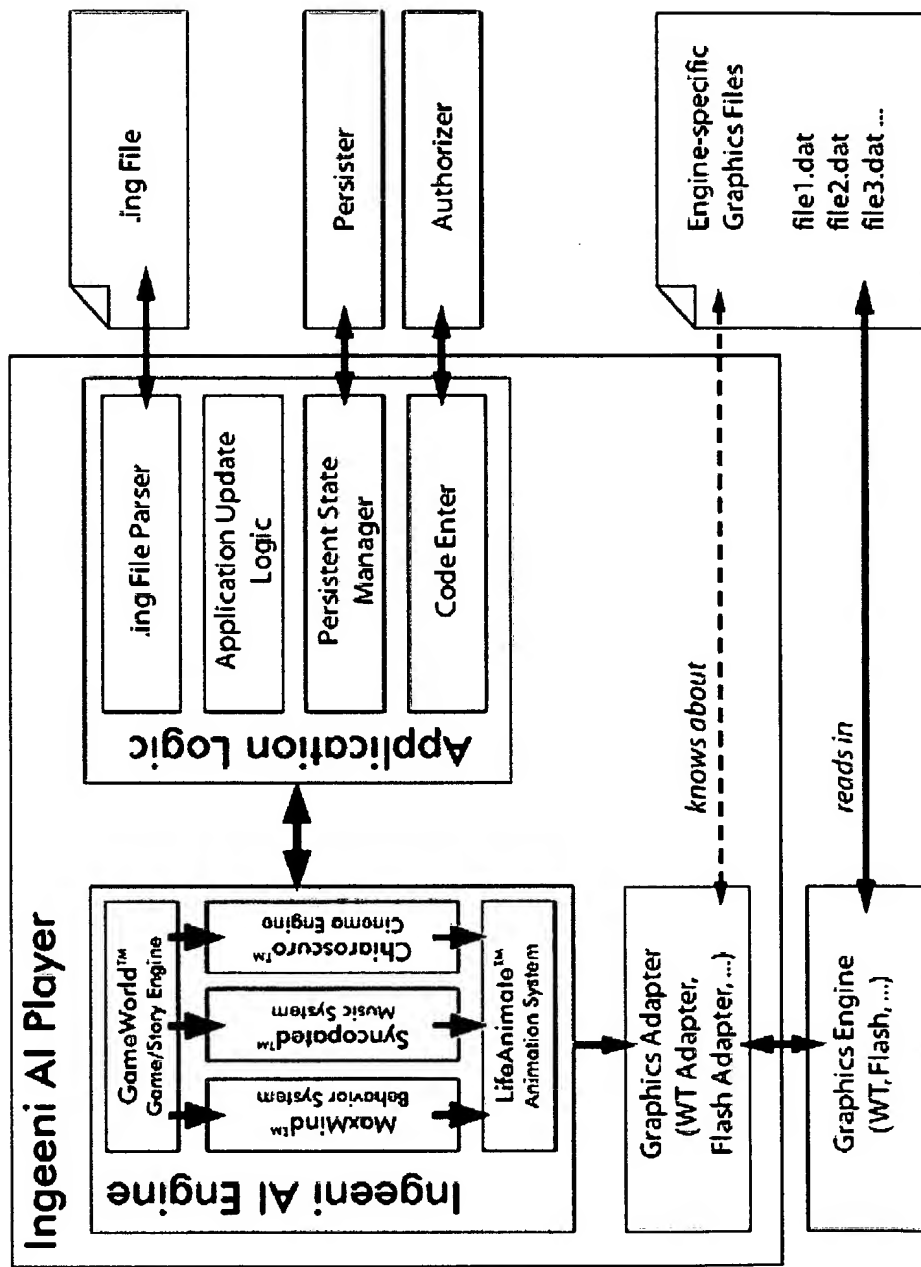


FIG. 15

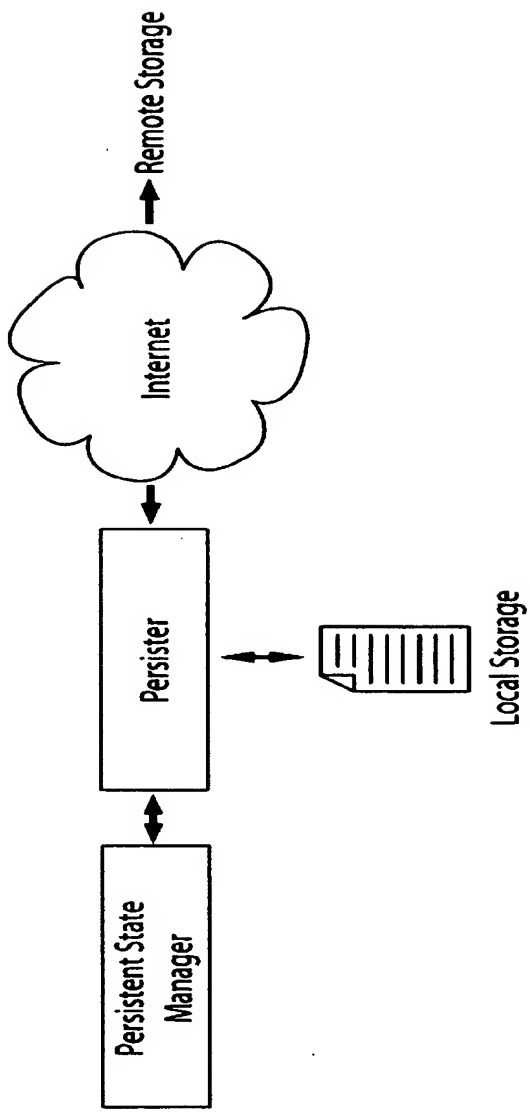


FIG. 16



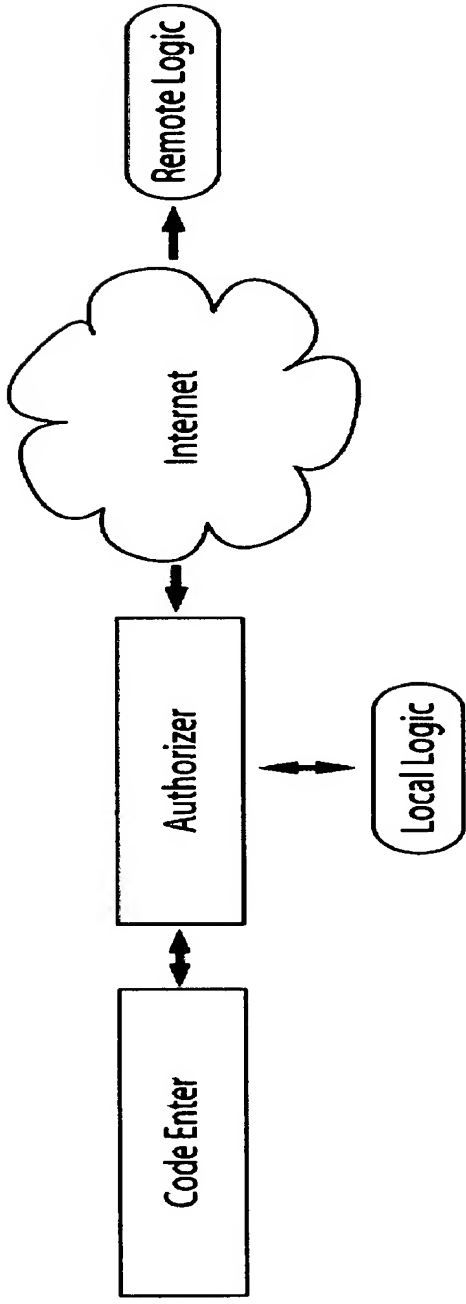


FIG. 17

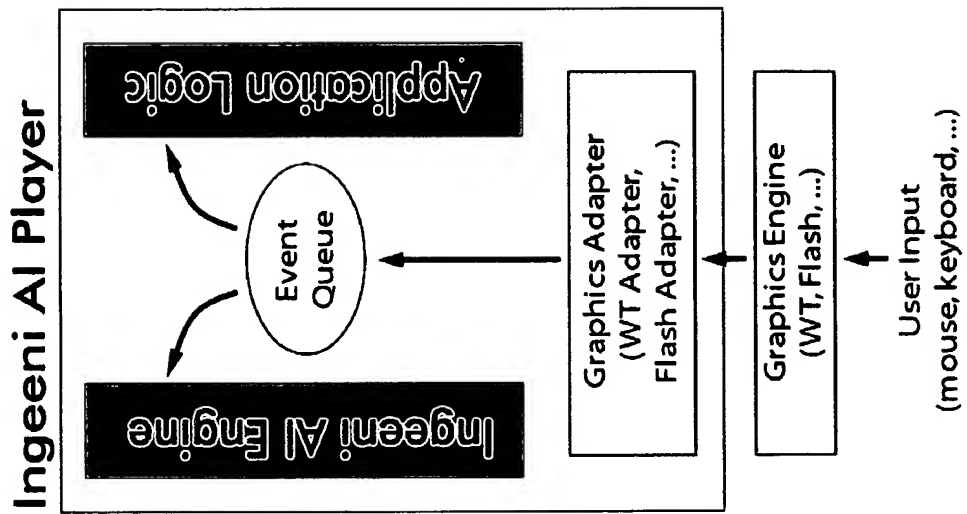
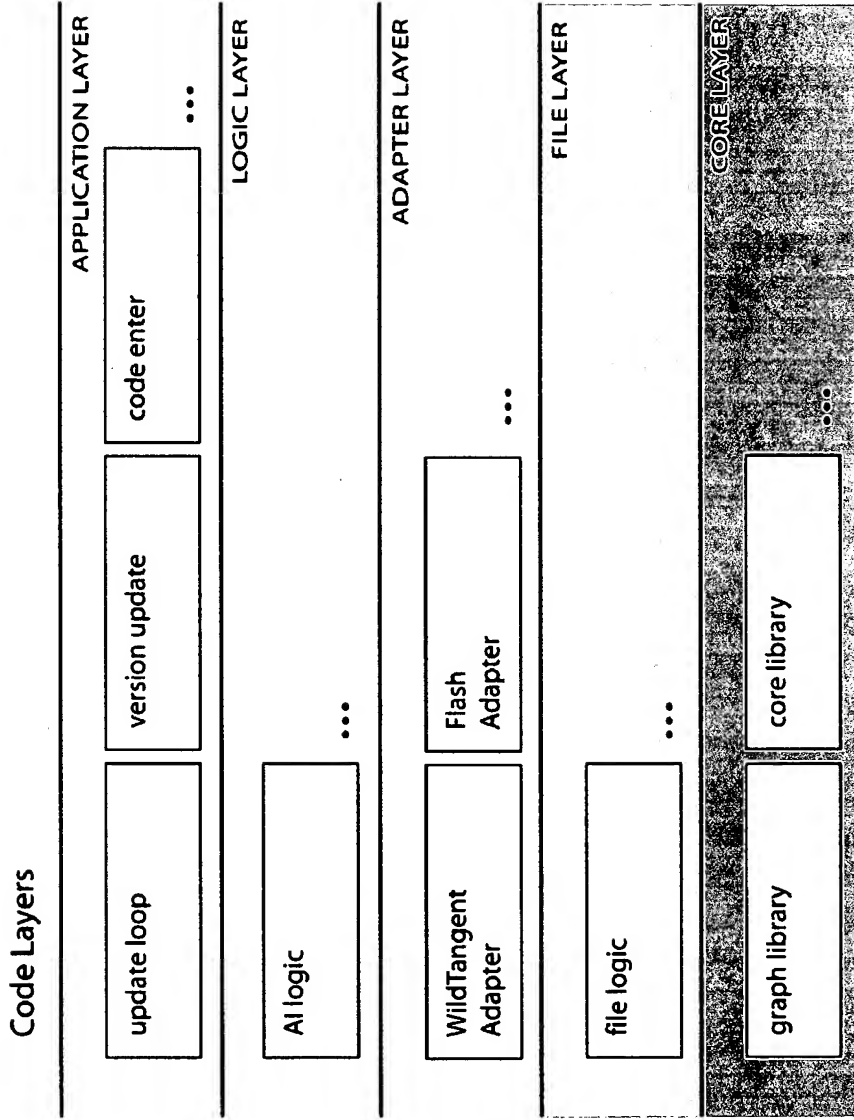


FIG. 18



**FIG. 19**

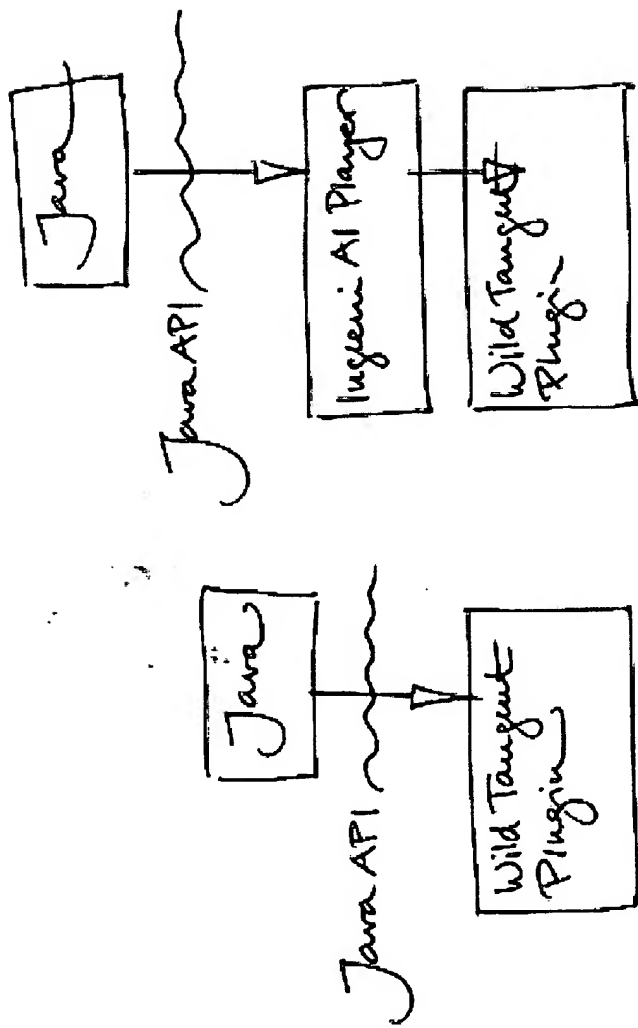


FIG. 20

Windows	OS X
Internet Explorer	Internet Explorer
Netscape	Netscape
	Safari

FIG. 21

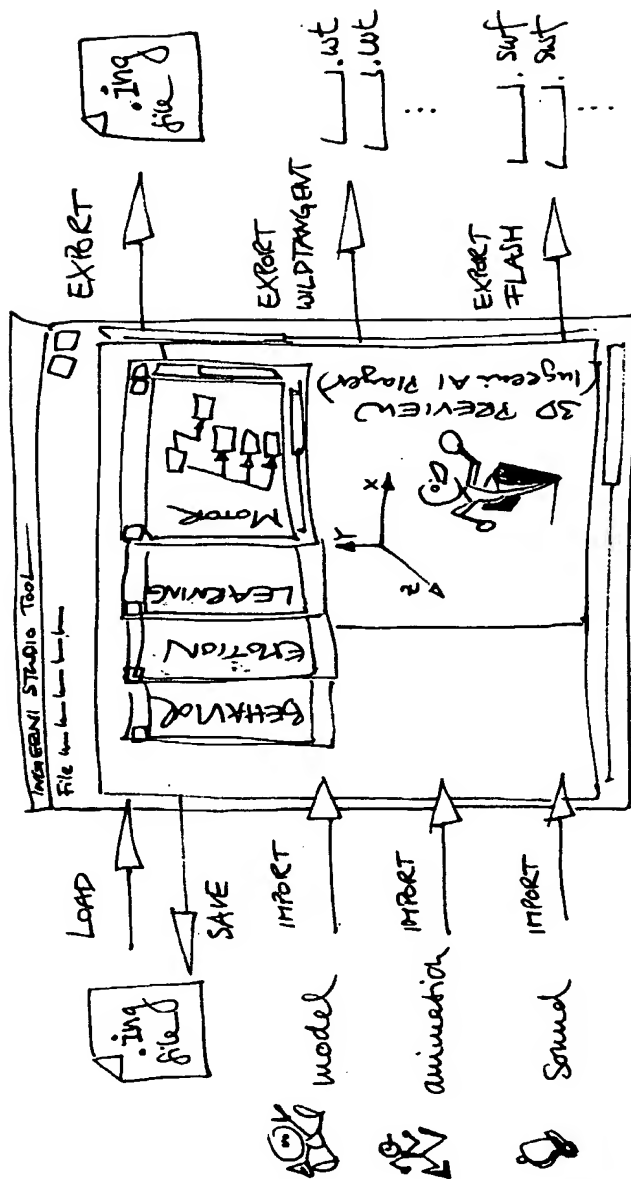


FIG. 22

<i>Suffix</i>	<i>Name</i>	<i>Owner/3<sup>rd</sup> Party</i>	<i>Purpose</i>
.dxf	DXF	AutoDesk	3D models
.obj	A W Object	Alias Wavefront	3D models
.mb	Maya Binary	Alias Wavefront	3D models, animations
.ma	Maya ASCII	Alias Wavefront	3D models, animations
.max	3D Studio MAX	Discreet	3D models, animations
.wav	Wave	-	Sound/music
.mid	MIDI	-	Sound/music
.jpg	JPEG	-	Image

FIG. 23

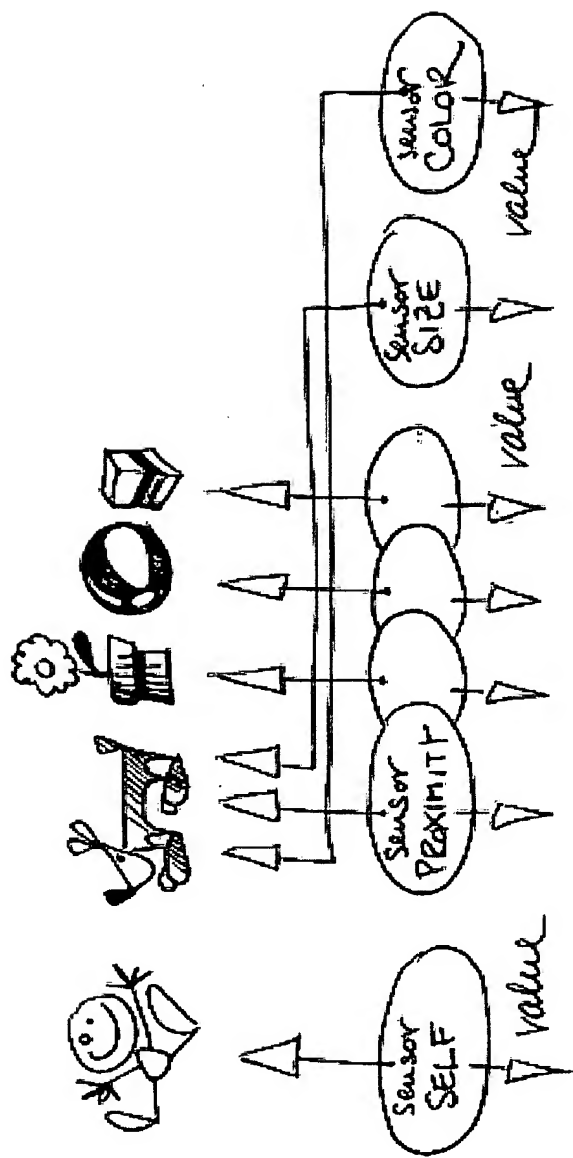


FIG. 24



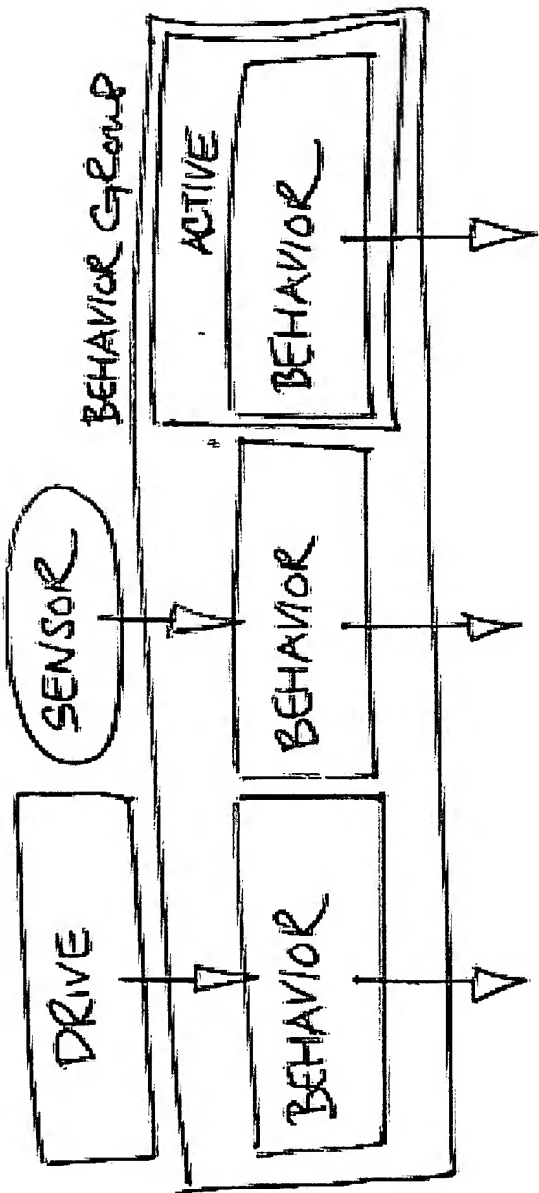


FIG. 25

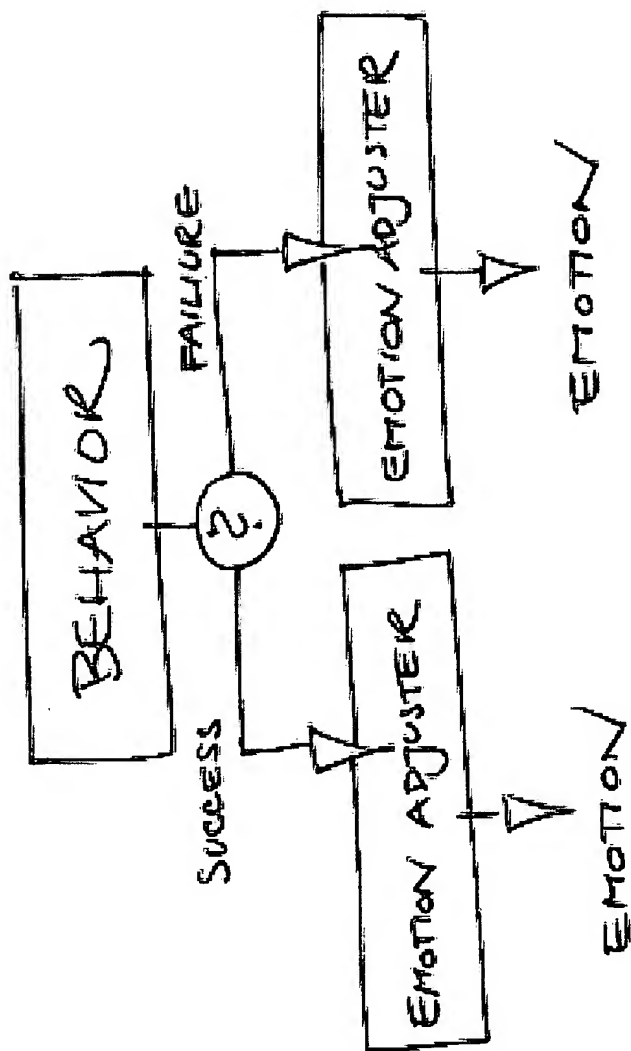


FIG. 26

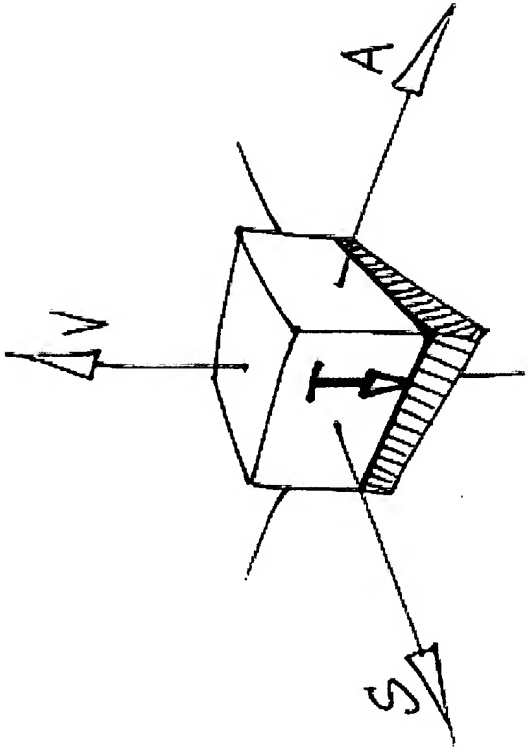


FIG. 27

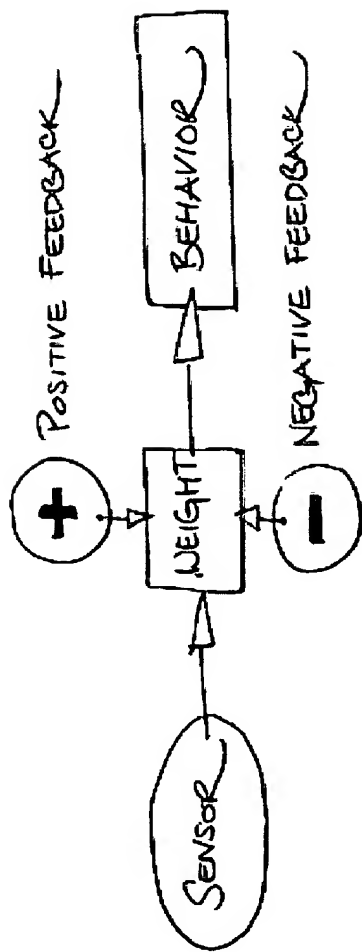


FIG. 28

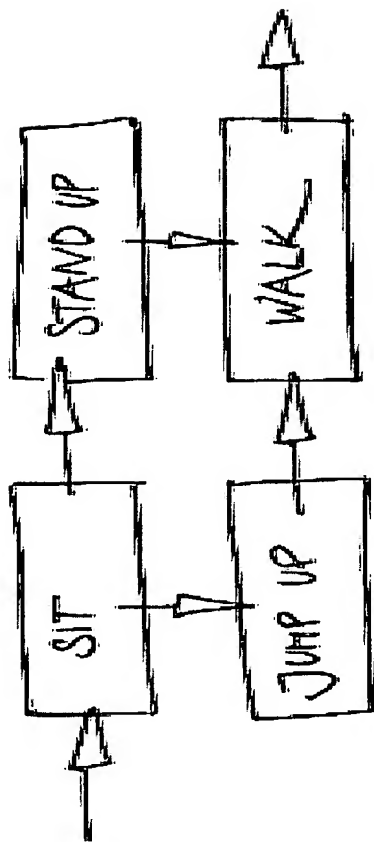


FIG. 29

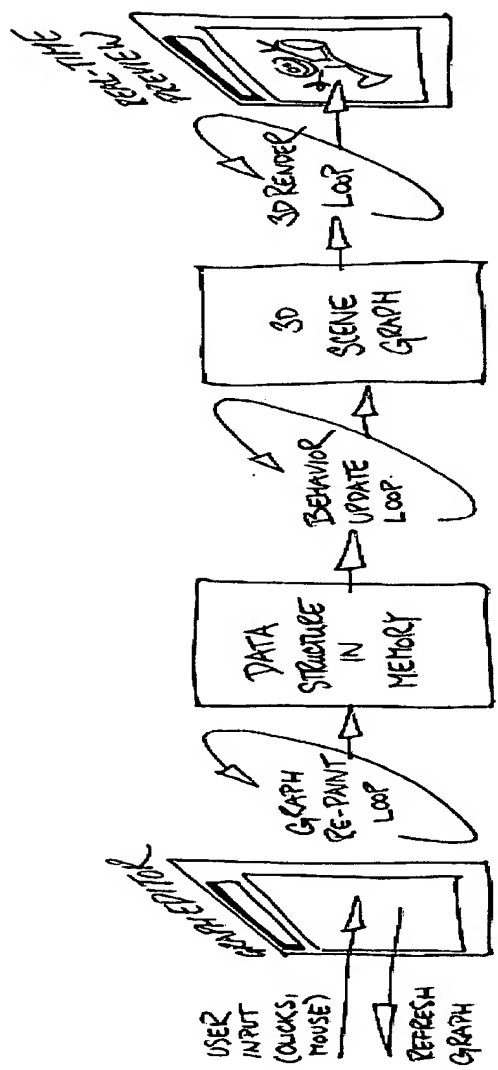


FIG. 30

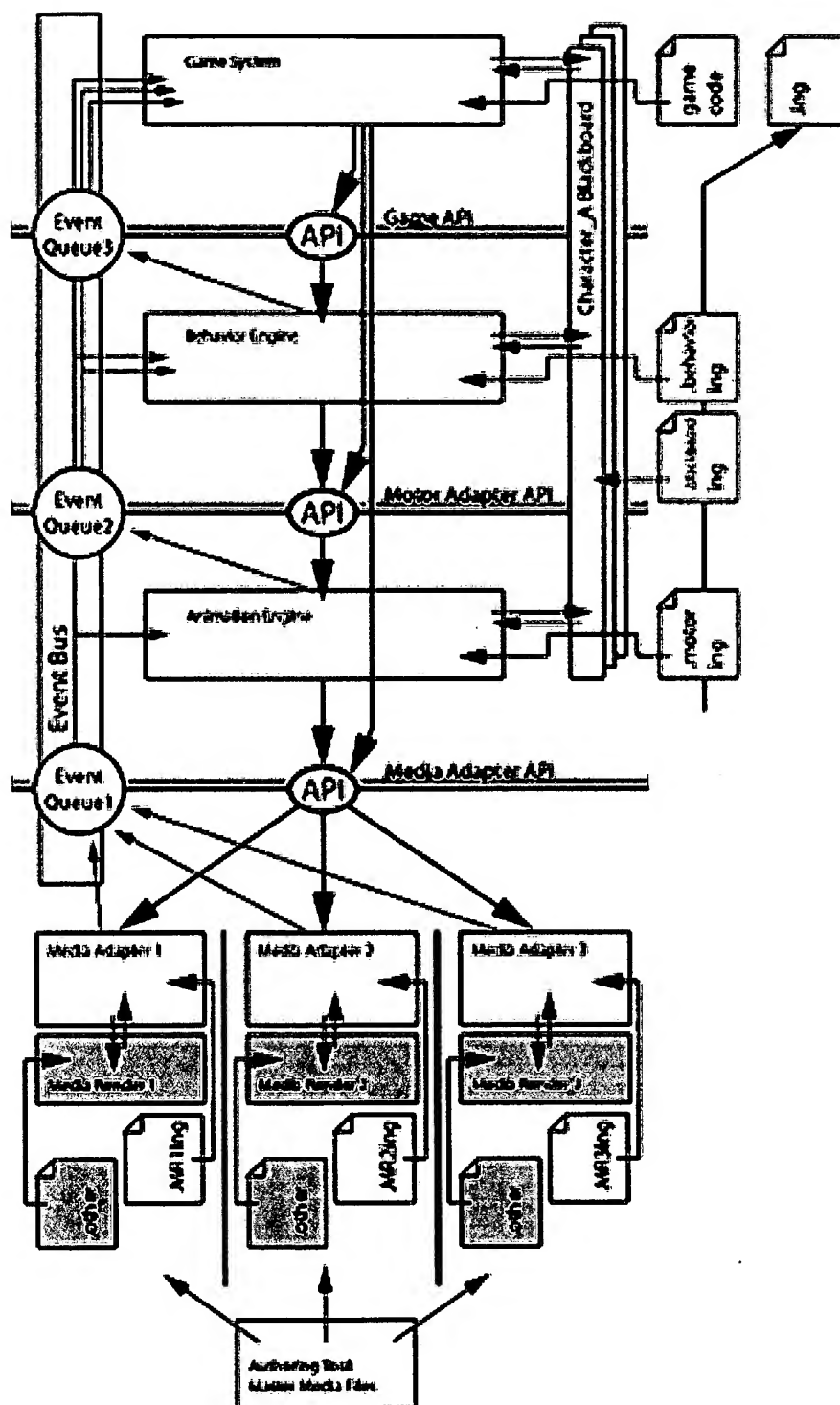


FIG. 31

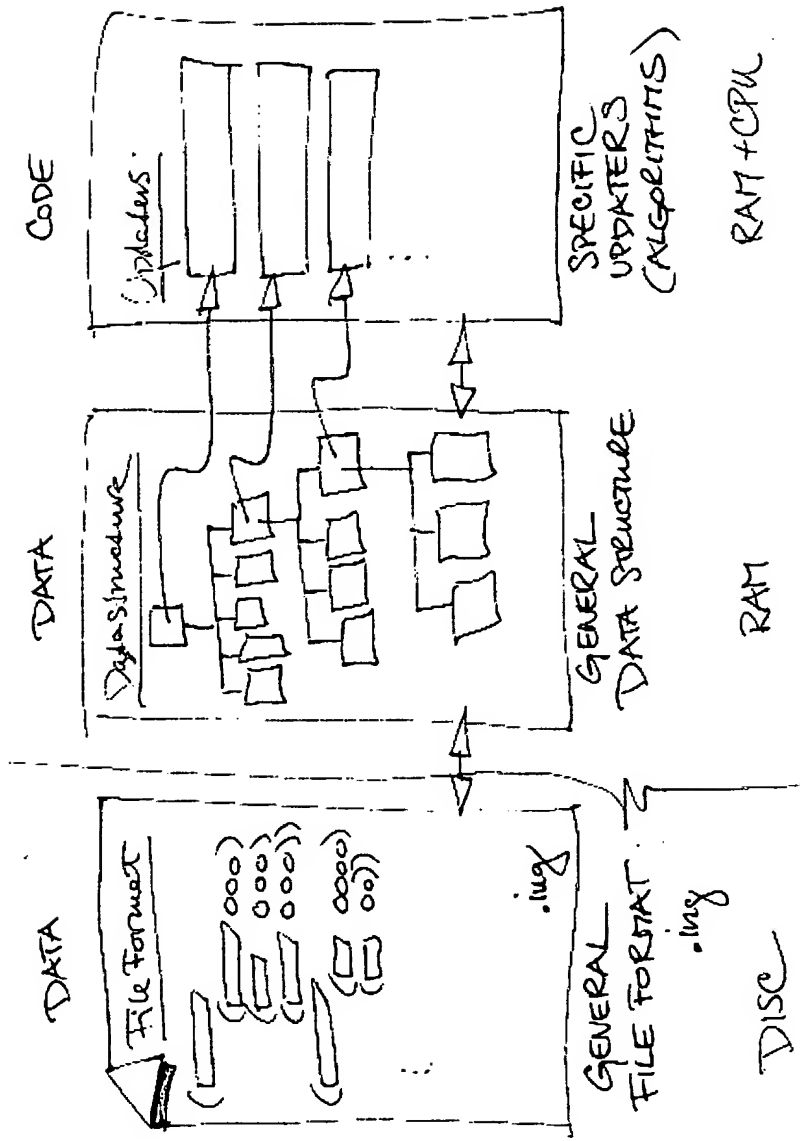


FIG. 32



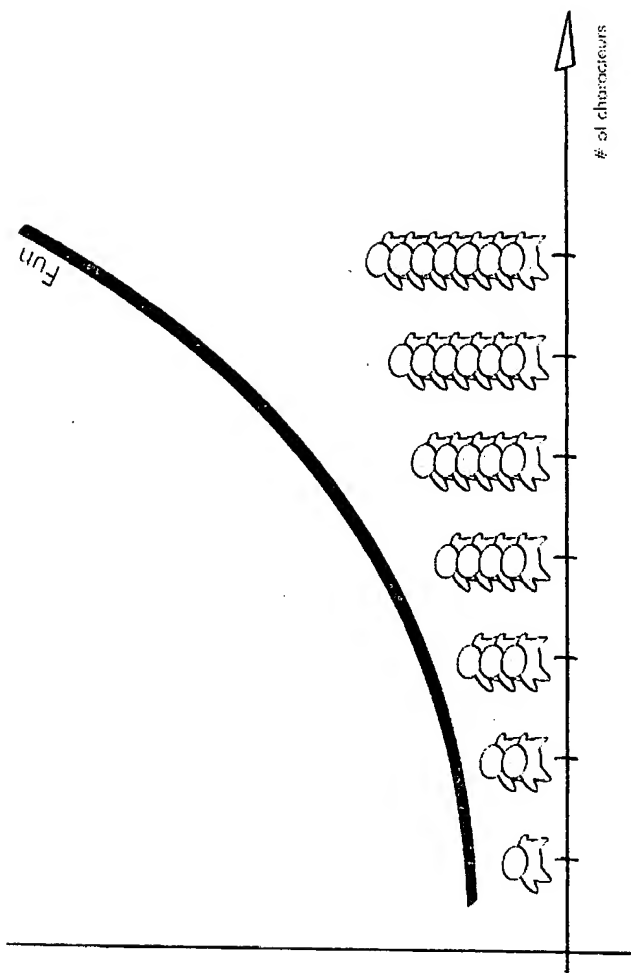


FIG. 33

	Positive	Negative
Temperament	User interacting in a happy, positive way with the character	User encourages sad or bored behavior in the character
Pervasiveness	User's positive interaction with character continues throughout virtual worlds	User's negative interaction with character continues throughout virtual worlds
Permanence	The consistency with which the user interacts in a positive way	The consistency with which the user interacts in a negative way
Aid	User increases character's level of happiness	User allows and does not stop negative influence of antagonist
Nourishment	User feeds a healthy, good, often "branded" food to the character	User feeds a sickly food to the character

FIG. 34

Num	Category	Code Module / Library	Functionality	Version
1	Engine	Story Engine	Imposes a top-level story on the open-ended interactions	V2.0
2	Engine	Behavior Engine	Implements Sensor, Behavior, Emotion and Learning subsystems	V1.0
3	Engine	Music Engine	Plays out emotionally-colored music in response to the user's and characters' actions	V1.0
4	Engine	Cinema Engine	Controls the autonomous camera and lighting of the scene	V1.0
5	Engine	Animation Engine	Interprets the behavior system commands based on the character's motor skills	V1.0
6	Data	AI Graph Data Structure	Holds all behavior, emotion, motor and learning-related data for all characters, world and camera	V1.0
7	Data	<i>.ing File Specification</i>	<i>written document (not code)</i>	V1.0
8	Data	<i>.ing Parser</i>	<i>read/write functionality for .ing file format</i>	V1.0
9	Player	Application Main	Contains the Player main loop	V1.0
10	Player	Application Update	Takes care of Versioning of the Player itself, looks for available updates and manages them	V1.0
11	Player	Persistent State Manager	Keeps track of the state of the scene as changed by the user, talks to Persister	V1.0
12	Player	Code Enter	Allows the user to enter PowerCodes; talks to Authorizer	V1.0
13	Player	Graphics Adapter WildTangent	Provides an interface between animation engine and WildTangent graphics	V1.0
14	Player	Graphics Adapter 2D	Provides an interface between animation engine and a possible 2D graphics solution	V2.0
17	Player	<i>Java API V1.0 Specification</i>	<i>written document (not code)</i>	V2.0
18	Player	Java API V1.0 Implementation	Defines an API to accessing the Engine's functionality from Java	V2.0
15	External	Persister	A module responsible for exchange between Persistent State Manager and a storage device	V1.0
16	External	Authorizer	A module responsible for exchange between Code Enter and a code verifier of choice	V1.0
18	Tool	Application Main	Contains the Tool main loop	V2.0
19	Tool	<i>.ing Parser</i>	<i>read/write functionality for .ing (redesigned)</i>	V2.0
20	Tool	Importer WildTangent	A parser for WildTangent's 3D data files; will have to cooperate directly with the company	V2.0
21	Tool	Importer .mb	A parser for Maya proprietary data files; we'll have to cooperate directly with the company	V3.0
22	Tool	Importer .max	A parser for 3D Studio MAX proprietary data files; we'll have to cooperate directly with the company	V3.0
23	Tool	other Importers	based on the developers' requirements	V3.0+
24	Tool	Graph Libraries	General software libraries for creating, manipulating and displaying graph structures	V2.0
25	Tool	GUI Sensor	GUI for developing and editing Sensor networks	V2.0
26	Tool	GUI Behavior	GUI for developing and editing Behavior networks	V2.0
27	Tool	GUI Emotion	GUI for developing and editing Emotion networks	V2.0
28	Tool	GUI Learning	GUI for developing and editing Learning networks	V2.0
29	Tool	GUI Motor	GUI for developing and editing Motor networks	V2.0
30	Tool	3D Scene Graph	A 3D scene graph for the real-time preview	V2.0
31	Tool	3D Real-Time Graphics	A 3D real-time graphics engine; either licensed 3rd party or developed in-house	V2.0
32	Tool	Exporter WildTangent	An exporter for WildTangent's data files; will have to cooperate directly with the company	V2.0
33	Tool	Exporter 2D	An exporter for 2D graphics	V3.0+

FIG. 35

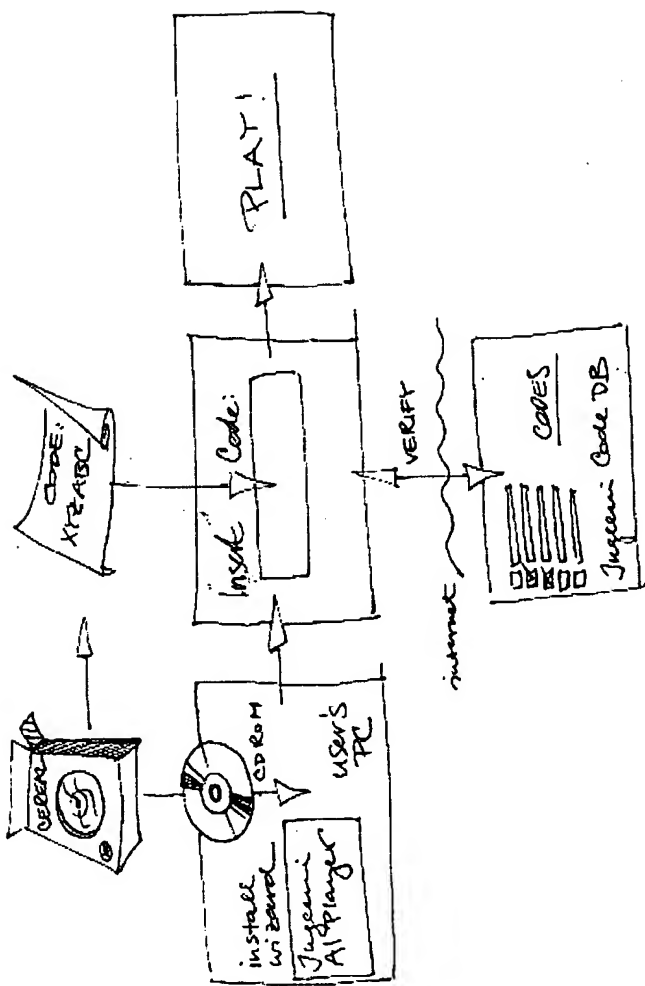


FIG. 36

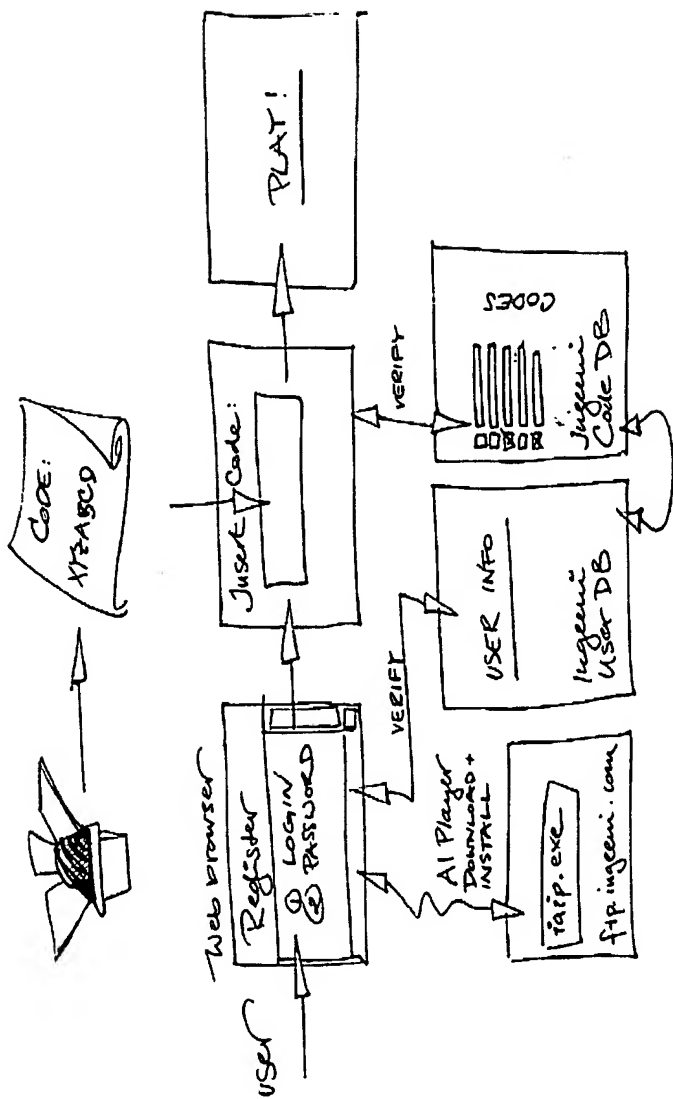


FIG. 37

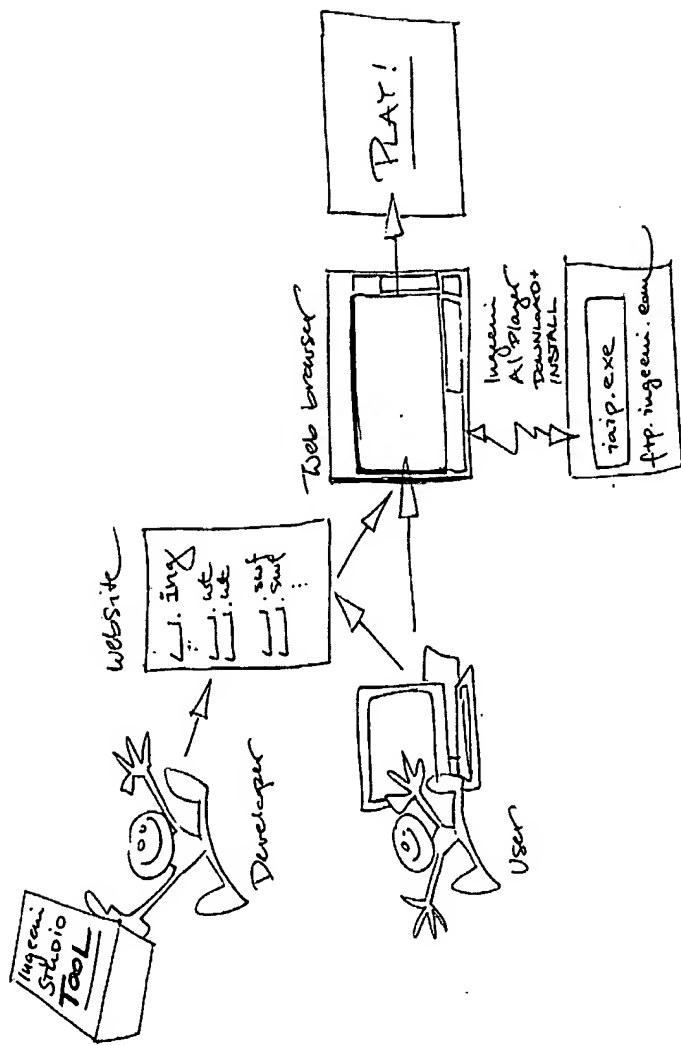


FIG. 38

